AMENDMENTS TO THE CLAIMS:

Please amend Claims 1 and 11-15 as follows:

(Currently Amended) An article comprising an all-pass optical filter including

an input port for receiving an input optical pulse having a regular repetition rate; an output port;

a splitter/combiner; and

one feedback path, wherein the all-pass optical filter is configured to apply a plurality of frequency-dependent time delay periods to the input optical pulse to define a time delay spectrum having a plurality of delay peaks, and the <u>a</u> free spectral range of the filter filter, as defined by the <u>a</u> spacing between the delay peaks, is matched to the regular repetition rate of the input optical pulse.

- 2. (Original) The all-pass optical filter of claim 1 in which the one feedback path comprises a ring resonator and a heating element for heating a section of the ring resonator.
- (Original) The all-pass optical filter of claim 1 arranged in parallel with a
 Mach-Zehnder interferometer.
- 4. (Original) The all-pass optical filter of claim 1 in which the free-spectral range of the filter is matched to the repetition rate of the pulse train by the free-spectral range being equal to the repetition rate.

5. (Original) An assembly for use in an optical communication system comprising an optical multiplexer/demultiplexer device including the all-pass optical filter of claim 4.

- 6. (Original) The all-pass optical filter of claim 1, in which the free-spectral range of the filter is matched to the repetition rate of the pulse train by the free-spectral range being offset from the repetition rate by a sufficiently small degree that each frequency of the pulse train falls within a bandwidth of one of the plurality of delay peaks.
- 7. (Original) An assembly for use in an optical communication system comprising a pulsed laser and the all-pass optical filter of claim 6, in which the all-pass optical filter corrects linear chirp of the pulsed laser.
- 8. (Original) An optical communications system comprising the all-pass optical filter of claim 1.
- 9. (Original) An optical communications system comprising the assembly of claim 5.
- 10. (Original) An optical communications system comprising the assembly of claim 7.

11. (Currently Amended) A method of generating a tunable delay for an optical signal with use of a single-stage all-pass optical filter wherein the <u>a</u> pulse train of the optical signal has a regular repetition rate, the method comprising matching the <u>a</u> spacing between the frequency-dependent time delay peaks generated by the all-pass optical filter to the repetition rate of the pulse train.



- 12. (Currently Amended) The method of claim 11, in which the a free-spectral range of the filter is matched to the repetition rate of the pulse train by the free-spectral range being equal to the repetition rate.
- 13. (Currently Amended) The method of claim 11, in which the a free-spectral range of the filter is matched to the repetition rate of the pulse train by the free-spectral range being offset from the repetition rate by a sufficiently small degree that each frequency of the pulse train falls within a bandwidth of one of the plurality of delay peaks.
- 14. (Currently Amended) A method for correcting linear chirp of a pulsed laser comprising the steps of:

providing an all-pass optical filter including an input port for receiving an input optical pulse having a regular repetition rate; an output port; a splitter/combiner; and one feedback path, wherein the all-pass optical filter is configured to apply a plurality of frequency-dependent time delay periods to the input optical pulse to define a time delay spectrum having a plurality of delay peaks, and

off-setting the <u>a</u> free spectral range of the filter as defined by the <u>a</u> spacing between the delay peaks from the regular repetition rate of the input optical pulse by a predetermined value such that each frequency of the pulse train falls within a bandwidth of one of the plurality of delay peaks, wherein the predetermined value is selected to substantially equalize the linear chirp of the pulsed laser.

Way.

15. (Currently Amended) A method for synchronizing control signals with transmission signals of an optical time-division multiplexer/demultiplexer system, the method comprising

providing an all-pass optical filter including an input port for receiving an input optical pulse having a regular repetition rate; an output port; a splitter/combiner; and one feedback path, wherein the all-pass optical filter is configured to apply a plurality of frequency-dependent time delay periods to the input optical pulse to define a time delay spectrum having a plurality of delay peaks,

configuring the <u>a</u> free spectral range of the all-pass optical filter as defined by the <u>a</u> spacing between the delay peaks to be equal to the regular repetition rate of the input optical pulse, and

applying the all-pass optical filter to the control signals to delay the control signals, thereby synchronizing the control signals with the transmission signals.